Bureau of Home Furnishings and Thermal Insulation

INITIAL STATEMENT OF REASONS

Hearing Dates: April 22, 2003 in San Francisco, CA and April 24, 2003 in Diamond Bar, CA.

Subject Matter of Proposed Regulations: Mattress Open-Flame Standard

(1) Section(s) Affected: Section 1371, and 1371.1 of the California Code of Regulations, Title 4, Division 3.

Specific Purpose of each adoption, amendment, or repeal:

1. Create Section 1371 (a) to incorporate and clarify language that is consistent with the federal standard already referenced in the Bureau's regulations.

2. Add Section 1371 (b) to comply with B&P Code Section 19161 that establishes an open-flame standard for mattresses, including futons, and mattress/box spring sets.

3. Add Section 1371 (c) to clarify the labeling requirements consistent with the federal standard already referenced in the Bureau's regulations.

4. Delete Section 1373.1 because it is not applicable with the new standard.

Factual Basis/Rationale

Factual basis for determination that each proposed change is necessary:

1. Amend Section 1371:

   (a) The Bureau clarifies the reference to the full title of the United States government standard for flammability of mattresses, 16 CFR 1632.

   (b) The Bureau adds language establishing a new open-flame mattress standard for mattresses sold in California.

   In the early 1970's, the United States Consumer Product Safety Commission (CPSC) established the Federal Mattress Flammability Standard 16 CFR 1632; which requires that mattresses resist ignition by smoldering cigarettes. According to the U.S. Fire Administration, the National Fire Protection Association (NFPA) and the CPSC, residential mattress fires constitute the single greatest cause of fire death in homes in the United States and children playing with small open-flame sources cause nearly two-thirds of such fires.

   The most current statistics indicate that fire losses in the United States associated with mattress and products involved in open-flame initiated fires included 336 civilian deaths, 2,311 injuries and $342 million in property losses. Fire statistics show that in instances of flashover fires originating in a bedroom, roughly one third of the occupants

die from intimate fire contact, one third from toxic conditions in the room or origin, and an additional third from movement of the fire and toxic smoke beyond the room of origin.

The Bureau's intent is to help prevent deaths and injuries and other related economic costs associated with mattress and bedding fires. Current bedding flammability law in the United States only addresses the smolder resistance of mattresses, futons and mattress pads but does not address their open-flame resistance. In October 1984, futon mattresses were added to this standard. In effect, mattresses, futons and mattress pads were required to meet a fire safety standard associated with a person dropping a lit cigarette onto a bed and initiating a smoldering fire. This fire could then develop into a larger, sustained smoldering fire releasing large amounts of toxic smoke and gases or progress to a flaming fire, which dramatically decreases the window of escape time.

The original Federal Mattress Standard was based on technology available in 1973. Subsequently, significant new technologies have been developed that enable product standards offering greater levels of protection, both for smoldering fires and specifically for cases of open flame combustion.

In October 1992, the Bureau and the mattress industry developed California Technical Bulletin 129 (TB 129), an open-flame standard for mattresses used in high-occupancy institutional settings such as prisons, dormitories, and hospitals. TB 129, in turn, provided the impetus for ASTM E 1590, a consensus standard promulgated by the American Society for Testing and Materials to establish a product performance test method for mattresses used in institutional settings.

Section 19161 of the Business and Professions Code, within the Home Furnishings and Thermal Insulation Act (Chapter 3 commencing with Section 19000 of Division 8 of the B&P Code), previously required that all mattresses sold in California be fire retardant. AB 603 (Dutra), Chapter 199, Stats. 2001 amended Section 19161 of B&P Code to require that after January 1, 2004, all mattresses, and box springs manufactured for sale in California, except in specified establishments with automatic fire extinguishing systems, must meet an open flame standard specified by the Bureau.

The proposed regulation establishes a standard titled, Technical Bulletin #603 (TB 603), “Requirements and Test Procedure for Resistance of a Residential Mattress/Box Spring Set to a Large Open-Flame”. TB 603 is based upon the National Institute of Standards and Technology (NIST) Dual Flame Burner Test Protocol. A mattress, futon or mattress/box spring set shall meet the following requirements when tested to this procedure:

1) Peak (maximum) heat release rate of the mattress set of 150 kilowatts at any time during the test.

2) Total heat release shall not exceed 25 megajoules or greater in the first 10 minutes of the test.

The duration of the test will be one hour (60 minutes) unless flashover appears inevitable or the product self-extinguishes prior to this time. A conservative maximum heat release rate of 150 kilowatts is to minimize the probability of rapid-fire progression and flashover that can be generated by the mattress set and surrounding. The total heat release value not exceeding 25 megajoules is needed to prevent a mattress set from contributing sufficient heat, smoke and toxic gas that can lower the potential for survivability in the pre-flashover stage of the fire. The one hour test duration is needed to provide an increased time for occupant recognition of a fire, and for escape and addresses the potential for construction components in the mattress set to be compromised and fail as the fire proceeds.

(c) The Bureau adds language to clarify the labeling requirements of federal standard 16 CFR, Part 1632. This proposed regulation, which reflects the federal labeling standard, clarifies that all mattresses must have an attached label bearing the month and date of manufacture and location of manufacturer. This label will facilitate the Bureau's enforcement of the law.

2. Delete Section 1373.1

The Bureau is deleting language that is not applicable with the new open-flame improvements afforded by Section 19161.

Underlying Data

Technical, theoretical or empirical studies or reports relied upon (if any):

Beginning in the 1990's national fire statistics indicated that the Federal Mattress Flammability Standard did not materially affect the incidence of residential mattress fires ignited by small open flames. More recent research conducted by the CPSC, the fire safety community, and private industry also shows that in the majority of bedroom fires involving open-flame ignitions, the bedding, which includes the pillow, comforter, and bedspread, is the first product to ignite, as opposed to the mattress itself.

In 2000, the National Institute of Standards and Technology (NIST) published the results of a study commissioned by the mattress industry, indicating that both bedding and box springs, also known as the mattress foundation, have a material impact on the rate at which a mattress ignites, the fire's intensity, and the risk that it will spread beyond the bedroom.

NIST research used computer models to estimate the number of fire-related casualties that can be avoided if the fire size and spread rate for bedding and mattress-related fires are reduced to specified levels.

Documents used for underlying data:

1. Flammability Assessment Methodology for Mattresses published in June 2000
2. Estimating Reduced Fire Risk Resulting From an Improved Mattress Flammability Standard published in August 2002.

3. Protocol for Testing Mattress/Foundation Sets Using a Pair of Gas Burners sent by e-mail from Dr. Thomas Ohlemiller, NIST Fire Research Division on February 7, 2003.
4. Letter from Patricia Martin, Executive Director, Sleep Product Safety Council to Lynn Morris, Bureau Chief, dated January 3, 2003 verifying that NIST dual burner protocol is a public domain document.

Business Impact

This regulation will not have a significant adverse economic impact on businesses. This initial determination is based on the following facts or evidence/documents/testimony:

Based upon numerous fact finding meetings and discussion with the mattress industry, suppliers in the United States and abroad, and with other members of the industry, adverse long term economic impact has not been a major issue. The strategy that will most likely be used to employ the new standard will be the use of flame-blocking barriers, fire retardant threads and encasing the core fillings with fire retardant materials. The Bureau believes there will be adequate availability of flame-blocking barrier materials and other components for use in constructing compliant mattresses.

The cost of these supplies do not constitute a significant cost to the manufacturers, however, some additional raw material cost and labor cost for the additional production step of adding the barrier materials will be incurred. Assurance has been obtained from the major national mattress manufacturers, (that constitute 60-70% of the manufacturing volume), that their mattresses will be constructed to meet the new California standard for sale throughout the United States. Therefore, California manufacturers will not be at a disadvantage complying with the new standard.

Specific Technologies or Equipment

This regulation mandates the use of specific technologies or equipment. Such mandates or prescriptive standards are required for the following reasons:

The NIST dual burner is the tool for starting the fire on a mattress set. Without this burner, it is impossible to measure open-flame mattress fire performance reproducibly and accurately. Although this dual burner technology requires a specific procedure and equipment, the Sleep Products Safety Council (SPSC), which contracted with NIST to develop the dual burner, has indicated the design is not proprietary. Thus, any equipment vendor using the exact specification in the protocol may produce and sell this burner for testing to this standard.

Consideration of Alternatives

No reasonable alternative to the regulation would be either more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed regulation.

Though specific technology is required it is because the performance standard must be objectively measured under specified circumstances and the chosen technology best mimics a real life mattress fire.